Amendments to the Specification

Please replace the paragraph starting on page 3, line 14 with the following amended paragraph:

The present invention provides a chemical generator having inlets for receiving multiple reactant and water streams; a dilution vessel; a reaction chamber operably connected to the inlets and to the dilution vessel; and an eductor operably receiving the water stream from the one of the inlets and communicating with the reaction chamber for drawing first and second reactant streams into the reaction chamber for mixing. Float control valves are provided for interrupting the water stream to the eductor when desired amounts of the first and second reactant streams have entered the reaction chamber, [[the]] with a second eductor drawing the mixture of first and second reactant streams from the reaction chamber into the dilution vessel. The float control valves also limit the time the first and second reactants reside in the reaction chamber and interrupt flow of the water stream into the dilution vessel.

Please replace the paragraph starting on page 6, line 20 with the following amended paragraph:

The chemical generator 10 has a cylindrical lip 15 supported at the top of the cylindrical vessel 12 that forms a support shoulder 16 as shown in FIG. 2. A lid member 18 is dimensioned to fit over the support shoulder 16. The chemical generator 10 has a ~~water inlet 20~~ water or diluent inlet 20 to receive water via an appropriate conduit (not shown) from a local water source, such as a municipal water supply that is typically pressurized at about from 25 to 80 psig. Of course, the inlet pressure can be established at any desirable value by pressure reducing or pressure elevating

pumps (not shown) as may be necessary. Preferably, an inlet water pressure of between 30 to 50 psi will be available for optimum and safe generation. The motive force of water delivered to the water inlet 20 operates the floats, valves, eductors and needle valves described hereinbelow.

Please replace the paragraph starting on page 11, line 5 with the following amended paragraph:

The equipment platform 40 shown in FIG. 2 shows a third valve 72 connected to a third float 74. The third float 74 ~~has a~~ is long, with a small diameter (0.5 to 2.0")~~ float~~. The third ~~valve 72~~ float 74 is long and slim so that the third valve 72 will not turn on until the tank is at its lowest level of product in the logic cycle or turn off until the fluid level in the dilution chamber 12 is at the highest level, the level designed to be lower than [[a]] an overflow fluid cutoff level. The third valve ~~controlled float~~ 72 stays open longer than would be anticipated based on [[its]] the buoyancy of the third float 74 because the third valve 72 is set by a spring or magnet to have a delayed closing. The third valve 72 operates like the first valve 52 discussed above and is in fluid communication with a timing needle valve 76. The timing needle valve 76, shown in FIG. 7, consists of a needle 80 with an adjustable threaded ~~needle~~ portion 78 that controls placement of [[a]] the needle 80 in a flow-line. The adjustable threaded ~~adjustable~~ portion 78 in the timing needle valve 76 allows for adjustment of the delay-time (subsequent activation of the reactant[[']]s in reaction chamber 44) activation for the second valve 62 and on through the second eductor 56.

Please replace the paragraph starting on page 12, line 17 with the following amended paragraph:

Floats for the ~~hydrologic~~ chemical generator 10 ~~of the~~ are made to the following criteria to fit [[the]] a tank of only 15 inches in height. Larger tank[[s]] sizes[[,]] or finished product concentration needs will require floats of different diameter, length and weight ~~floats~~ to control the logic functions.

Please replace the paragraph starting on page 13, line 17 with the following amended paragraph:

A GRAS acid, an acid that is "generally regarded as safe" as defined in the CFR, is mixed with the precursor (chlorite or chlorate ions in a 1 to 5% solution) in what is referred as "activation[[.]]" to form an activated solution 29. The time between mixing of the precursors and dilution of the activated ~~solution~~ solution 29 is known as the "activation time."

Please replace the paragraph starting on page 14, line 16 with the following amended paragraph:

When the product 30 in the chemical generator 10 drops to a level that the first float 54 activates the first valve 52 then water flows through the first eductor 46. When water flows through the first eductor 46 in the direction shown by arrow 48, as shown in both FIG. 4 and FIG. 5, then the first eductor 46 creates a flow, as indicated by the arrow 50, of air from the reaction chamber 44. As air is evacuated from the reaction chamber 44, a vacuum develops in the vacuum tight reaction chamber 44. The vacuum created in the reaction chamber 44 draws reactants from inlet orifices 22 and 24 that are connected to the sodium chlorite and the acid containers. The reaction chamber 44

provides the protected environment needed for activation before the activated ~~solution~~ solution 29 is expelled. As shown in ~~FIG. 2~~ FIG 12, when the first valve 52 closes, water ceases to flow through the first eductor 46. The design of the first eductor 46 used is such that the first eductor 46 allows the venting of any pressure that may be generated from the reaction of the precursors.

Please replace the paragraph starting on page 15, line 14 with the following amended paragraph:

As the level continues to rise, the second float 64 activates the second valve 62 that is coupled to the second eductor 56, as shown in ~~FIG. 2~~ FIG. 13. The second valve 62 is placed in an upside down position, as discussed above, to facilitate a normally open instead of a normally closed function. When the second valve 62 is actuated by a rising fluid level, the ~~resultant reactant product 30~~ activated solution 29, which is a chlorine dioxide solution, is pulled from the bottom of the reaction chamber 44 as water flows through the second valve 62. The ~~product 30~~ activated solution 29 is diluted in the dilution chamber 12. When the second float 64 falls with the falling product 30 level, the second float 64 will pull tension on spring hanger 66 so the valve will seat in the valve seat 68. This stops the water flow in the flow-line between the second valve 62 and the second eductor 56.

Please replace the paragraph starting on page 16, line 2 with the following amended paragraph:

As shown in FIG. 2, a third float 74 controls a third valve 72. The length, density, and diameter of the ~~float~~ third float 74 adjusts the fill height required to actuate the function of the third

valve 72. The third float 74 controls the water stream that will be utilized by a timing needle valve 76 in conjunction with the first and second valves 52, 62 in preparing the ~~resultant reactant product 30~~ activated solution 29 and in the further dilution of the ~~of the said solution~~ activated solution 29 in the dilution chamber 12. The third ~~valve 72~~ float 74 is long and slim and will not turn on third valve 72 until the [[tank]] fluid level in the dilution chamber 12 is at its lowest level or turn off third valve 72 until the fluid level in the dilution chamber 12 is at the highest level, the level designed to be lower than a overflow fluid cutoff level. The third valve 72 ~~controlled float~~ stays open longer then would be anticipated based on its buoyancy because the ~~valve~~ third valve 72 is set by a spring or magnet to have a delayed closing. This is an example of another way the hydrologic system of the chemical generator 10 can be adjusted to control the steps necessary to achieve the desired final product.

Please replace the paragraph starting on page 16, line 15 with the following amended paragraph:

The timing needle valve 76, as shown in FIG. 7, continues to fill the ~~reservoir~~ dilution chamber 12 during and after the first eductor's 46 precursor eduction is complete and the first valve 52 is closed. The motive water ceases to flow through the first eductor 46, but continues to flow through the timing needle valve 76. The regulated flow through the timing needle valve 76 controls the time that the combination sodium chlorite and acid are allow to react in the reaction chamber 44. The time period can be adjusted by changing the tension on an adjustable threaded ~~needle~~ portion 78 of needle 80 that controls placement of the needle 80 in the flow-line from the water inlet 20. The timing needle valve 76 allows for proper reaction time for the reactants in the reaction

chamber 44 before the flow from the timing needle valve 76 raises the level in the ~~finished product reservoir~~ dilution chamber 12 to the point that the second float 64 activates the second valve 62.

Please replace the paragraph starting on page 17, line 4 with the following amended paragraph:

As discussed above, the water from the second valve 62 provides motive for the second eductor 56. The vacuum created by water flow through the second eductor 56 pulls the ~~reactants~~ activated solution 29 from the reaction chamber 44 and dilutes the ~~reactants~~ activated solution 29 with the motive water and discharges the resulting solution into the dilution chamber 12. Water continues to flow through the timing needle valve 76 and the second eductor 56 until the third float 74 actuates the third valve 72 returning the system to a static state.

Please replace the paragraph starting on page 17, line 11 with the following amended paragraph:

As shown in FIG. 2, a fourth float 84 controls a fourth valve 82 to provide overflow protection for the ~~system, if~~ system. If the system starts to overflow, the fourth valve 82 shuts off all water flow to the system. The fourth valve 82 is on at all times unless an accidental overflow condition is present. The fourth float 84 for the fourth valve 82 is set high in the dilution chamber 12, and the high level position of the fourth float 84 prevents interference with other valves that are involved in the production cycle of the generator system. The fourth valve 82 is not involved in any of the logic functions needed to generate the resultant reactant product 30. The fourth valve 82 can be equipped with a safety interlock mechanism that keeps the fourth valve 82 from refilling the

[[tank]] dilution chamber 12 until the fourth valve 82 is manually reset. This unit can produce up to about 5 pounds of chlorine dioxide in a 24 hour period. Through the use of an adjuster on the user valve 34, the user outlet 36 can generate a stream, a spray, or a mist of resultant product 30. The user outlet 36 can be attached to a separate structure 38 which is fitted to the lid 18 of the chemical generator 10.

Please replace the paragraph starting on page 18, line 20 with the following amended paragraph:

As FIG. 11 shows, once the motive water flows into the chemical generator 10 through first valve 52, the motive water flows on to the first eductor 46 and on to the dilution chamber 12. As motive water flows through first eductor 46, the motive water pulls a vacuum on the top of the reaction chamber 44. This vacuum in turn pulls the ~~chemical product 30~~ precursors from the first and second inlet orifices 22, 24 into the reaction chamber 44. The water that has ~~flown~~ flowed through the first eductor 46 also causes the water level to rise in the dilution chamber 12. There is a check valve [[84]] 85 on the reaction chamber that prevents the flow of air into the reaction chamber 44 through second eductor [[46]] 56 while the first eductor is operational.

Please replace the paragraph starting on page 19, line 6 with the following amended paragraph:

As depicted in FIG. 12, first float 54 activates first valve 52 as the water level raises in the dilution chamber 12, ~~causes~~ causing first valve 52 to close. This causes flow through the first eductor 46 to stop. Thus no more chemical precursors flow into the reaction chamber 44. The

timing of all the steps that involve motive water can be adjusted by adjusting the timing needle valve 76 shown in FIGS. 8 - 13. For ~~example the~~ example, the amount of chemical ~~that flowed~~ flowing into the reaction ~~chamber~~ chamber 44 could be reduced if the timing valve 76 was adjusted to speed up the ~~flowrate through that valve76~~ flow rate through the timing valve 76 and the whole generator 10. In a similar way the ~~reaction~~ activation time can be adjusted, as shown in FIG. 12.

Please replace the paragraph starting on page 19, line 15 with the following amended paragraph:

As depicted in FIG. 13, the rising water level activates second float 64 to open second valve 62. Motive water flows through second valve 62 to the second eductor 56. The second eductor 56 pulls a vacuum on the bottom of the reaction chamber 44 and pulls the ~~reacted product~~ activated solution 29 into the dilution ~~chamber12~~ chamber 12. As explained above, the ~~amount of time the product reacted in the reaction chamber 44~~ activation time is related to the fill rate of dilution ~~valve~~ chamber 12 through the needle valve 76. At this time the ~~product~~ product 30 concentration is at the lowest level but that level starts to rise as ~~product~~ activated solution 29 flows into the dilution chamber 12.

Please replace the paragraph starting on page 20, line 1 with the following amended paragraph:

As the system is ~~draw-down~~ drawn down to activate valve third 72 again the cycle outlined above will repeat. The cycle time is dependent on the setting of the timing needle valve 76 that controls the length of time that the reactants will remain in the reaction chamber 44. The time for

an entire cycle can be as low as 2 ~~minute~~ minutes and as long as 30 to 40 minutes. The timing cycle is determined by the concentrations of the reactants that are drawn into the reaction ~~chamber~~ chamber 44 and the amount of chlorine dioxide gas yield from the reactants that is desired. Longer reaction times equate to more chlorine dioxide gas.